

Title (en)

Electrically programmable read-only memory and methods for programming and reading

Title (de)

Elektrisch programmierbarer Nur-Lese-Speicher sowie Verfahren zum Programmieren und Lesen dieses Speichers

Title (fr)

Mémoire non-volatile programmable électriquement et procédés de programmation et de lecture

Publication

EP 0936626 B1 20040211 (DE)

Application

EP 98124028 A 19981217

Priority

DE 19805782 A 19980212

Abstract (en)

[origin: EP0936626A2] The EPROM has a device (M1,M2,M3) for evaluating and regulating the voltage (V) of the bit line (BL). A memory cell (Z) is provided. This has a transistor with a floating gate. The control gate is connected to the word line (WL). The drain terminal is connected to the bit line and the source terminal is connected to the reference potential (GND). The bit line can be connected via a p-channel first MOS transistor (M1) to a bit line supply voltage (VBL). The gate (CH) of the first transistor (M1) can be connected via a p-channel second MOS transistor (M2) with the bit line supply voltage (VBL) and via an n-channel third MOS transistor (M3) to the reference potential. The bit line is connected to the gate of the second p-channel MOS transistor. The gate of the third transistor is connected to the input for a pulse type voltage (PHI). The method for programming the EPROM involves using the pulsed voltage and the third and first transistors to cause the bit line to be connected to the bit-line supply voltage. A pulse train with negative and positive pulses is then applied to the word line. During the negative pulse, the memory cells are programmed. During the positive pulse, it is checked whether a desired threshold voltage of the transistor of that cell has been reached. If so, the memory cell is conductive and the voltage at the bit line is reduced. The p-channel MOS transistor is closed. The bit line is then decoupled from the supply voltage and the cell is discharged to the reference potential.

IPC 1-7

G11C 16/06

IPC 8 full level

G11C 16/02 (2006.01); **G11C 16/06** (2006.01); **G11C 16/10** (2006.01); **G11C 16/26** (2006.01)

CPC (source: EP KR US)

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Designated contracting state (EPC)

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EP 98124028 A 19981217; DE 59810754 T 19981217; JP 3475999 A 19990212; KR 19990002330 A 19990126; TW 88100338 A 19990111; US 23651799 A 19990125